

State of Washington

2001 Combined Actuarial Valuation

December 2002

Public Employees Retirement System
Teachers Retirement System
School Employees Retirement System
Law Enforcement Officers and Fire Fighters Retirement System
Washington State Patrol Retirement System



WASHINGTON STATE LEGISLATURE
Office of the State Actuary

**Report of the Combined
Actuarial Valuation
As of September 30, 2001**

This report presents the actuarial valuation results of Washington state's five main public employee retirement systems:

- Public Employees Retirement System (PERS);
- Teachers Retirement System (TRS);
- School Employees Retirement System (SERS);
- Law Enforcement Officers and Fire Fighters Retirement System (LEOFF); and
- Washington State Patrol Retirement System (WSP).

It was prepared in accordance with actuarial practices and procedures recognized by the American Academy of Actuaries and meets statutory requirements set forth in Chapter 41.45 RCW.

These valuations reflect the benefits and liabilities of the systems as contained in Chapters 41.26; 41.32; 41.35; 41.40; and 43.43 RCW. The valuations were performed as of September 30, 2001.

Assumptions of investment return, inflation, salary and membership growth used in these valuations were set by the legislature in 2001. Demographic assumptions were developed from the 1995-2000 experience study performed by the Office of the State Actuary. These assumptions are reasonable and represent expected future experience.

Member and beneficiary data were provided by the Department of Retirement Systems. Comparisons were made to the prior year's data and a series of additional data checks were performed. From this analysis it was determined the data is sufficient and reliable for the purposes of the valuations. Unaudited asset information was provided by the State Investment Board.

Legislation enacted after the 2001 valuation date has been included in the contribution rates and are described in Section VII.

Respectfully submitted,

Larry Risch, M.A.A.A.
Deputy State Actuary

2420 Bristol Court S.W., Suite 101
P.O. Box 40914
Olympia, WA 98504-0914
(360) 753-9144

FAX: (360) 586-8135
TDD: 1-800-635-9993

E-MAIL: actuary_st@leg.wa.gov

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Section I

Contribution Rates

Contribution Rates

Valuation Contribution Rates

	Plan 1		Plan 2/3	
	2000	2001	2000	2001
PERS				
Member*	6.00%	6.00%	1.05%	1.41%
Employer (Normal Cost)	1.05%	1.41%	1.05%	1.41%
Employer (Plan 1 UAAL)	0.58%	0.64%	0.58%	0.64%
Total Employer	1.63%	2.05%	1.63%	2.05%
TRS				
Member*	6.00%	6.00%	1.29%	1.20%
Employer (Normal Cost)	1.76%	1.50%	1.76%	1.50%
Employer (Plan 1 UAAL)	0.62%	0.72%	0.62%	0.72%
Total Employer	2.38%	2.22%	2.38%	2.22%
SERS				
Member*	N/A	N/A	0.46%	1.10%
Employer (Normal Cost)	N/A	N/A	0.64%	1.10%
Employer (PERS Plan 1 UAAL)	N/A	N/A	0.58%	0.64%
Total Employer	N/A	N/A	1.22%	1.74%
LEOFF				
Member	0.00%	0.00%	4.02%	5.05%
Employer	0.00%	0.00%	2.41%	3.03%
State (Normal Cost)	0.00%	0.00%	1.61%	2.02%
State (Plan 1 UAAL)	0.00%	0.00%	0.00%	0.00%
Total State	0.00%	0.00%	1.61%	2.02%
WSP				
Member	2.00%	2.00%	N/A	N/A
Employer (State)	0.00%	0.00%	N/A	N/A

*Plan 3 members do not contribute to the defined benefit plan.

Contribution rates resulting from the actuarial valuations are expressed as a percentage of salary. Both the 2000 and 2001 valuation rates were calculated to be effective in 2003.

The 2001 contribution rates reflect legislation enacted during the 2002 legislative session and new demographic assumptions from the 1995-2000 Experience Study.

Development of Employer/State Contribution Rates

	PERS		TRS		SERS	WSP
	<i>Plan 1</i>	<i>Plan 2/3</i>	<i>Plan 1</i>	<i>Plan 2/3</i>	<i>Plan 2/3</i>	<i>Plan 1</i>
Total Normal Cost	7.41%	2.82%	7.50%	2.70%	2.20%	(9.50)%
Less Employee Contribution*	6.00%	1.41%	6.00%	1.20%	1.10%	2.00 %
Employer Contribution	1.41%	1.41%	1.50%	1.50%	1.10%	0.00%
Cost to Amortize UAAL	0.64%	0.64%	0.72%	0.72%	0.64%	0.00%
Total Employer Contribution Rate	2.05%	2.05%	2.22%	2.22%	1.74%	0.00%

*Plan 3 Members do not contribute to the defined benefit plan.

	LEOFF	
	<i>Plan 1</i>	<i>Plan 2</i>
Total Normal Cost	0.00%	10.10%
Less Employee Contribution	0.00%	5.05%
Less Employer Contribution	0.00%	3.03%
State Contribution	0.00%	2.02%
Cost to Amortize UAAL	0.00%	0.00%
Total State Contribution Rate	0.00%	2.02%

Actuarial Valuation Methods

Plan 2 and Plan 3

The Aggregate Actuarial Cost Method was used to calculate Plan 2 and Plan 3 contribution rates. The unfunded actuarial present value of fully projected liability is amortized over the future payroll of the active group. The entire contribution is considered normal cost and no unfunded actuarial accrued liability exists.

Plan 1

The actuarial cost method used to develop contribution rates for the Plan 1 systems is a variation of the Entry Age Cost Method. The normal cost of each type of benefit provided by the Plan 1 systems is determined by the contribution rate which, if paid from the average new member's entry date to retirement, would fully prefund that benefit. Since all new entrants became members of Plan 2 or Plan 3, we have used the aggregate Plan 2/3 normal cost in Plan 1.

LEOFF Plan 1 benefits are fully funded, so no contributions are required.

Contributions toward the PERS and TRS Plan 1 unfunded actuarial accrued liabilities were developed as the level percent of expected future payroll needed to amortize the liability by June 30, 2024. Future payroll includes current members in both Plan 1, Plan 2 and Plan 3, as well as new hires. Using this method, the PERS employer costs are the same for Plan 1 and Plan 2 members. Similarly, the TRS employer costs are the same for Plan 1, Plan 2 and Plan 3. Since School District employees remain in PERS Plan 1, SERS employers continue to contribute toward the PERS 1 unfunded as provided by statute.

Washington State Patrol

The actuarial cost method used to develop contribution rates is the Aggregate Cost Method. The employee contribution rate is equal to the employer contribution rate, or 2% if greater.

Adoption of contribution rates

Current legislation requires the adoption of new rates every odd-numbered year for the biennium starting two years later. However, the Laws of 2002 adopted contribution rates effective April 1, 2002 based on the 2000 valuation adjusted for the 1995-2000 Experience Study.

The 2001 valuation rates are calculated to be effective in 2003 and were adopted by the Pension Funding Council.

Gain-sharing

Gain-sharing costs are recognized to the extent that prior investment gains might lead to gain-sharing. The future 4 year average(s) that gain-sharing is based on are estimated using the assumed rate for future years.

Development of Normal Cost Contribution Rates

<i>(Dollars in millions)</i>	<u>PERS 2</u>	<u>TRS 2/3</u>	<u>SERS 2/3</u>	<u>LEOFF 2</u>	<u>WSP 1</u>
Actuarial Present Value of Fully Projected Benefits	\$ 12,428	\$ 4,024	\$ 1,610	\$ 3,652	\$ 655
Valuation Assets	11,032	3,547	1,472	2,576	712
Unfunded Actuarial Present Value of Fully Projected Benefits	\$ 1,397	\$ 477	\$ 139	\$ 1,076	\$ (57)
Employer Gain-sharing Responsibility	N/A	77	0	N/A	N/A
Contributions to 2003	125	45	15	129	2
	\$ 1,272	\$ 354	\$ 123	\$ 947	\$ (59)
Present Value of Projected Salaries to Current Members (PVS)					
Plan 1 PVS	N/A	N/A	N/A	N/A	621
Plan 2 PVS	\$ 45,117	\$ 3,438	\$ 3,585	\$ 9,375	N/A
Plan 3 PVS	N/A	22,551	4,033	N/A	N/A
2 x Plan 2 PVS + Plan 3 PVS	N/A	29,427	11,203	N/A	N/A
Employee Contribution Rate*	1.41%	1.20%	1.10%	5.05%	2.00%
Employer Contribution Rate	1.41%	1.50%	1.10%	3.03%	(11.50)%
State Contribution Rate	N/A	N/A	N/A	2.02%	N/A
Total Contribution Rate*	2.82%	2.70%	2.20%	10.10%	(9.50)%

Note: Totals may not agree due to rounding.

*Plan 3 members do not contribute to the defined benefit plan.

Development of Contribution Rate to Amortize the Unfunded Actuarial Accrued Liability (UAAL)

<i>(Dollars in Millions)</i>	PERS 1	TRS 1	LEOFF 1
Actuarial Present Value of Fully Projected Benefits	\$ 12,244	\$ 10,050	\$ 4,244
Valuation Assets	10,990	9,342	5,369
Actuarial Present Value of Future Normal Costs	393	309	0
UAAL	860	400	(1,125)
Expected UAAL Contributions to 2003	66	35	0
Remaining UAAL	\$ 794	\$ 365	\$ (1,125)
Present Value of Projected Salaries beyond 2003	\$ 124,228	\$ 50,640	\$ 15,530
Contribution Rate to Amortize the remaining UAAL	0.64%	0.72%	*(7.24)%
Amortization Date	6/30/24	6/30/24	6/30/24

Note: Totals may not agree due to rounding

*LEOFF 1 is fully funded so no UAAL contributions are required.

Section II

Actuarial Determinations

Actuarial Determinations

Actuarial Present Value of Fully Projected Benefits

2001 Valuation (Dollars in millions)	PERS			TRS			SERS
	Plan 1	Plan 2	Total	Plan 1	Plan 2/3	Total	Plan 2/3
Active							
Retirement	\$ 4,665	\$ 10,126	\$ 14,791	\$ 3,737	\$ 3,596	\$ 7,333	\$ 1,384
Termination	32	413	445	26	110	136	113
Death	33	74	107	17	42	60	13
Disability	46	90	137	16	4	20	10
Refund on Termination	20	328	348	2	8	10	28
Refund on Death	38	147	185	23	12	35	10
Portability	9	32	41	11	4	15	4
Uniform COLA	390	0	390	304	0	304	0
Total Active	\$ 5,234	\$ 11,211	\$ 16,445	\$ 4,135	\$ 3,776	\$ 7,911	\$ 1,562
Inactive							
Terminated	\$ 186	\$ 612	\$ 798	\$ 214	\$ 149	\$ 363	\$ 33
Service Retired	5,561	549	6,110	4,713	93	4,806	14
Disability Retired	104	35	140	90	3	93	1
Survivors	326	20	347	181	3	184	0
Uniform COLA	833	0	833	717	0	717	0
Total Inactive	\$ 7,009	\$ 1,218	\$ 8,227	\$ 5,915	\$ 248	\$ 6,163	\$ 48
2001 Total	\$ 12,244	\$ 12,428	\$ 24,672	\$ 10,050	\$ 4,024	\$ 14,074	\$ 1,610
2000 Total	\$ 12,367	\$ 11,890	\$ 24,257	\$ 10,234	\$ 3,826	\$ 14,060	\$ 1,963

Note: Totals may not agree due to rounding.

Actuarial Present Value of Fully Projected Benefits - *Continued*

2001 Valuation (Dollars in millions)	LEOFF			WSP
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Total</i>	<i>Plan 1</i>
Active				
Retirement	\$ 457	\$ 3,361	\$ 3,817	\$ 351
Termination	2	78	81	1
Death	6	9	15	5
Disability	272	4	276	0
Refund on Termination	0	78	78	1
Refund on Death	2	47	49	1
Portability	0	3	3	0
Uniform COLA	0	0	0	0
Total Active	\$ 739	\$ 3,580	\$ 4,319	\$ 360
Inactive				
Terminated	\$ 15	\$ 40	\$ 55	\$ 2
Service Retired	1,174	29	1,203	278
Disability Retired	1,981	2	1,983	1
Survivors	336	1	337	13
Uniform COLA	0	0	0	0
Total Inactive	\$ 3,505	\$ 72	\$ 3,577	\$ 295
2001 Total	\$ 4,244	\$ 3,652	\$ 7,896	\$ 655
2000 Total	\$ 4,110	\$ 3,225	\$ 7,334	\$ 614

Note: Totals may not agree due to rounding.

Actuarial Present Value of Credited Projected Benefits

2001 Valuation (Dollars in millions)	PERS			TRS			SERS
	Plan 1	Plan 2	Total	Plan 1	Plan 2/3	Total	Plan 2/3
Active							
Retirement	\$ 3,819	\$ 4,403	\$ 8,222	\$ 3,077	\$ 1,462	\$ 4,539	\$ 613
Termination	25	218	243	21	54	75	56
Death	27	34	61	14	18	32	6
Disability	38	46	83	13	2	15	5
Refund on Termination	15	153	168	1	5	6	12
Refund on Death	31	73	104	19	7	25	5
Portability	8	14	22	9	2	11	2
Uniform COLA	320	0	320	250	0	250	0
Total Active	\$ 4,282	\$ 4,940	\$ 9,222	\$ 3,406	\$ 1,549	\$ 4,954	\$ 699
Inactive							
Terminated	\$ 186	\$ 612	\$ 798	\$ 214	\$ 149	\$ 363	\$ 33
Service Retired	5,561	549	6,110	4,713	93	4,806	14
Disability Retired	104	35	140	90	3	93	1
Survivors	326	20	347	181	3	184	0
Uniform COLA	833	0	833	717	0	717	0
Total Inactive	\$ 7,009	\$ 1,218	\$ 8,227	\$ 5,915	\$ 248	\$ 6,163	\$ 48
2001 Total	\$ 11,291	\$ 6,158	\$ 17,449	\$ 9,320	\$ 1,797	\$ 11,117	\$ 747
2000 Total	\$ 11,337	\$ 5,671	\$ 17,008	\$ 9,376	\$ 1,654	\$ 11,030	\$ 1,091

Note: Totals may not agree due to rounding.

Actuarial Present Value of Credited Projected Benefits - *Continued*

2001 Valuation (Dollars in millions)	LEOFF			WSP
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Total</i>	<i>Plan 1</i>
Active				
Retirement	\$ 402	\$ 1,487	\$ 1,889	\$ 183
Termination	2	42	44	1
Death	5	4	10	2
Disability	243	2	245	0
Refund on Termination	0	38	38	1
Refund on Death	2	22	24	1
Portability	0	2	2	0
Uniform COLA	0	0	0	0
Total Active	\$ 655	\$ 1,597	\$ 2,252	\$ 188
Inactive				
Terminated	\$ 15	\$ 39	\$ 55	\$ 2
Service Retired	1,174	29	1,203	278
Disability Retired	1,981	2	1,983	1
Survivors	336	1	337	13
Uniform COLA	0	0	0	0
Total Inactive	\$ 3,505	\$ 72	\$ 3,577	\$ 295
2001 Total	\$ 4,160	\$ 1,668	\$ 5,828	\$ 483
2000 Total	\$ 4,010	\$ 1,528	\$ 5,539	\$ 468

Note: Totals may not agree due to rounding.

Development of Funding Ratio

(Dollars in millions)					
	PERS		TRS		SERS
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>	<i>Plan 2/3</i>	<i>Plan 2/3</i>
Credited Projected Liability	\$ 11,291	\$ 6,158	\$ 9,320	\$ 1,797	\$ 747
Valuation Assets	10,990	11,032	9,342	3,547	1,472
Unfunded Liability	\$ 301	\$ (4,874)	\$ (22)	\$ (1,750)	\$ (724)
Funding Ratio:					
2001*	97%	179%	100%	197%	197%
2000*	98%	190%	100%	196%	170%
1999	93%	189%	93%	188%	159%
1998	86%	191%	86%	185%	147%
1997*	83%	187%	82%	181%	140%
1996	73%	157%	70%	144%	128%
1995	68%	150%	65%	136%	119%
1994 *	67%	142%	65%	130%	110%
1993	70%	142%	62%	126%	110%
1992	67%	139%	59%	127%	108%
1991	67%	149%	59%	131%	106%
1990	66%	154%	60%	140%	105%
1989*	65%	162%	58%	144%	103%
1988	66%	165%	59%	143%	102%
1987	71%	175%	58%	135%	95%
1986	63%	162%	50%	125%	87%

Note: Totals may not agree due to rounding.

*Assumptions changed.

Development of Funding Ratio – (Continued)

(Dollars in millions)	LEOFF		WSP
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>
Credited Projected Liability	\$ 4,160	\$ 1,668	\$ 483
Valuation Assets	5,369	2,576	712
Unfunded Liability	\$ (1,209)	\$ (907)	\$ (229)
Funding Ratio:			
2001*	129%	154%	147%
2000*	136%	161%	152%
1999	125%	154%	159%
1998	117%	160%	147%
1997*	108%	155%	140%
1996	89%	130%	128%
1995	80%	126%	119%
1994 *	68%	124%	110%
1993	68%	127%	110%
1992	65%	128%	108%
1991	66%	154%	106%
1990	65%	153%	105%
1989*	65%	158%	103%
1988	66%	153%	102%
1987	69%	157%	95%
1986	57%	142%	87%

Section III

Demographic Changes in Membership

Demographic Changes in Membership

Summary of Demographic Changes

	2000			2001		
	Plan 1	Plan 2	Total	Plan 1	Plan 2	Total
PERS:						
<u>Active Members</u>						
Number	25,833	126,428	152,261	23,981	128,955	152,936
Total Salaries (millions)	\$ 1,132	\$ 4,964	\$ 6,096	\$ 1,085	\$ 5,294	\$ 6,334
Average Age	53.5	43.1	44.9	54.0	43.4	45.1
Average Service	20.5	7.9	10.0	20.7	8.1	10.1
Average Salary	\$ 43,827	\$ 39,265	\$ 40,039	\$ 45,226	\$ 40,707	\$ 41,416
<u>Terminated Members</u>						
Number Vested	3,220	14,094	17,314	3,310	15,102	18,412
Number "Non-Vested"	7,704	71,330	79,034	8,019	76,733	84,752
<u>Retirees</u> (including L&I disabled)						
Number of Retirees (All)	53,161	7,927	61,088	53,538	8,651	62,189
Avg. Monthly Benefit, All Retirees	\$ 1,040	\$ 517	\$ 972	\$ 1,098	\$ 546	\$ 1,021
Number of New "Service Retirees"	2,347	1,073	3,420	1,750	710	2,460
Avg. Monthly Benefit, New "Service Retirees"	\$ 1,918	\$ 676	\$ 1,756	\$ 1,964	\$ 733	\$ 1,609

Summary of Demographic Changes - *Continued*

	2000				2001			
	Plan 1	Plan 2	Plan 3	Total	Plan 1	Plan 2	Plan 3	Total
TRS:								
<u>Active Members</u>								
Number	17,222	8,356	38,280	63,858	13,971	8,056	44,193	66,220
Total Salaries (millions)	\$ 957	\$ 386	\$ 1,657	\$ 3,000	\$ 800	\$ 391	\$ 1,958	\$ 3,149
Average Age	53.4	47.0	40.1	44.6	53.9	47.8	40.0	43.9
Average Service	23.3	10.0	8.0	12.4	23.2	10.6	7.6	11.3
Average Salary	\$ 55,580	\$ 46,230	\$ 43,288	\$ 46,988	\$ 57,243	\$ 48,563	\$ 44,312	\$ 47,557
<u>Terminated Members</u>								
Number Vested	1,976	2,199	1,242	5,417	1,990	2,342	1,730	6,062
Number "Non-Vested"	965	5,404	0	6,369	949	5,041	0	5,990
<u>Temporarily Disabled</u>	9	0	0	9	5	0	0	5
<u>Retirees</u>								
Number of Retirees (All)	29,839	519	92	30,450	32,195	709	203	33,107
Avg. Monthly Benefit, All Retirees	\$ 1,294	\$ 773	\$ 323	\$ 1,282	\$ 1,409	\$ 854	\$ 367	\$ 1,391
Number of New "Service Retirees"	1,603	110	38	1,751	3,278	185	100	3,563
Avg. Monthly Benefit, New "Service Retirees"	\$ 1,857	\$ 907	\$ 370	\$ 1,836	\$ 1,985	\$ 1,002	\$ 413	\$ 1,890

Summary of Demographic Changes - *Continued*

	2000			2001		
	Plan 2	Plan 3	Total	Plan 2	Plan 3	Total
SERS:						
<u>Active Members</u>						
Number	25,714	22,011	47,725	24,063	24,284	48,347
Total Salaries (millions)	\$ 526	\$ 486	\$ 1,012	\$ 486	\$ 518	\$ 1,004
Average Age	45.7	45.2	45.5	46.5	45.1	45.8
Average Service	6.2	7.5	6.8	6.9	7.0	7.0
Average Salary	\$ 20,466	\$ 22,073	\$ 21,207	\$ 20,193	\$ 21,324	\$ 20,761
<u>Terminated Members</u>						
Number Vested	537	196	733	929	637	1,566
Number "Non-Vested"	1,461	0	1,461	2,717	0	2,717
<u>Retirees</u> <i>(including L&I disabled)</i>						
Number of Retirees (All)	27	0	27	191	78	269
Avg. Monthly Benefit, All Retirees	\$ 467	\$ 0	\$ 467	\$ 452	\$ 212	\$ 382
Number of New "Service Retirees"	25	0	25	144	74	218
Avg. Monthly Benefit, New "Service Retirees"	\$ 492	\$ 0	\$ 492	\$ 481	\$ 208	\$ 388

Summary of Demographic Changes - *Continued*

	2000			2001		
	Plan 1	Plan 2	Total	Plan 1	Plan 2	Total
LEOFF:						
<u>Active Members</u>						
Number	1,499	13,133	14,632	1,315	13,585	14,900
Total Salaries (millions)	\$ 95	\$ 780	\$ 875	\$ 87	\$ 831	\$ 918
Average Age	51.9	38.3	39.7	52.4	38.5	39.7
Average Service	26.9	9.7	11.5	27.5	9.9	11.5
Average Salary	\$ 63,296	\$ 59,410	\$ 59,808	\$ 65,959	\$ 61,139	\$ 61,564
<u>Terminated Members</u>						
Number Vested	31	248	279	29	303	332
Number "Non-Vested"	92	940	1,032	94	1,051	1,145
<u>Retirees</u>						
Number of Retirees (All)	7,780	143	7,923	7,894	184	8,078
Avg. Monthly Benefit, All Retirees	\$ 2,516	\$ 921	\$ 2,487	\$ 2,620	\$ 1,063	\$ 2,585
Number of New "Service and Disability Retirees"	252	35	287	185	39	224
Avg. Monthly Benefit, New "Service and Disability Retirees"	\$ 3,122	\$ 1,206	\$ 3,087	\$ 3,070	\$ 1,485	\$ 2,794

Summary of Demographic Changes - *Continued*

	2000	2001
	<u>Total</u>	<u>Total</u>
WSP:		
<u>Active Members</u>		
Number	1,013	1,027
Total Salaries (millions)	\$ 58	\$ 60
Average Age	38.3	38.3
Average Service	12.0	11.7
Average Salary	\$ 57,745	\$ 58,633
<u>Terminated Members</u>		
Number Vested	21	26
Number "Non-Vested"	12	14
<u>Disabled Members*</u>	63	63
<u>Retirees</u>		
Number of Retirees (All)	672	696
Average Monthly Benefit, All Retirees	\$ 2,514	\$ 2,647
Number of New "Service Retirees"	34	29
Average Monthly Benefit, New "Service Retirees"	\$ 3,301	\$ 3,867

**Benefits provided outside of pension funds.*

Section IV

System Assets

System Assets

Valuation assets are at market value with gains/(losses) recognized evenly over four years. Gains/(losses) for 1999 have been fully recognized under the asset smoothing method previously used. Gains/(losses) for 2001 are for the inter-valuation period (9 months for PERS, SERS, LEOFF and WSP; 15 months for TRS).

The gains/(losses) are calculated on assets held by the State Investment Board.

Valuation Assets

(Dollars in Millions)							
	PERS			TRS			SERS
	Plan 1	Plan 2	Total	Plan 1	Plan 2/3	Total	Plan 2/3
2001 Market Value	\$ 9,373	\$ 9,443	\$ 18,816	\$ 7,985	\$ 3,045	\$ 11,030	\$ 1,230
Deferred 2001 Gain (75%)	(1,235)	(1,225)	(2,461)	(1,598)	(585)	(2,183)	(178)
Deferred 2000 Gain (50%)	(382)	(363)	(745)	241	82	324	(64)
2001 Valuation Assets	\$ 10,990	\$ 11,032	\$ 22,021	\$ 9,342	\$ 3,547	\$ 12,889	\$ 1,472
2001 Gain							
Actual Return	\$ (1,021)	\$ (1,017)	\$ (2,037)	\$ (1,173)	\$ (433)	\$ (1,606)	\$ (146)
Expected Return	626	617	1,244	958	346	1,304	91
Gain	\$ (1,647)	\$ (1,634)	\$ (3,281)	\$ (2,131)	\$ (780)	\$ (2,911)	\$ (237)
2000 Gain							
Actual Return	\$ 54	\$ 42	\$ 96	\$ 1,142	\$ 390	\$ 1,533	\$ 7
Expected Return	818	769	1,586	660	225	885	136
Gain	\$ (764)	\$ (727)	\$ (1,490)	\$ 483	\$ 165	\$ 647	\$ (128)

Note: Totals may not agree due to rounding.

(Dollars in Millions)				
	LEOFF			WSP
	Plan 1	Plan 2	Total	Plan 1
2001 Market Value	\$ 4,578	\$ 2,210	\$ 6,788	\$ 608
Deferred 2001 Gain (75%)	(603)	(284)	(887)	(80)
Deferred 2000 Gain (50%)	(188)	(82)	(270)	(24)
2001 Valuation Assets	\$ 5,369	\$ 2,576	\$ 7,944	\$ 712
2001 Gain				
Actual Return	\$ (498)	\$ (235)	\$ (734)	\$ (66)
Expected Return	306	143	449	40
Gain	\$ (804)	\$ (378)	\$ (1,183)	\$ (106)
2000 Gain				
Actual Return	\$ 27	\$ 9	\$ 36	\$ 3
Expected Return	402	174	575	52
Gain	\$ (375)	\$ (165)	\$ (540)	\$ (49)

Market Value of Total System Assets

(Dollars in millions)							
	PERS			TRS			SERS
	Plan 1	Plan 2	Total	Plan 1	Plan 2/3	Total	Plan 2/3
	Fund 631	Fund 641		Fund 632	Fund 642		Fund 633
2001 Assets:							
Cash & Short-Term	\$ 138	\$ 145	\$ 283	\$ 133	\$ 56	\$ 189	\$ 24
Fixed Income	2,594	2,609	5,203	2,204	838	3,042	338
Commingled Funds	3,929	3,951	7,880	3,339	1,269	4,608	512
Corporate Stocks	415	418	833	353	134	487	54
Venture Capital	965	970	1,935	820	312	1,131	126
Leveraged Buy-outs	499	502	1,000	424	161	585	65
Real Estate	802	807	1,609	681	259	941	105
<i>Invested Assets</i>	\$ 9,342	\$ 9,401	\$ 18,743	\$ 7,954	\$ 3,029	\$ 10,983	\$ 1,223
Receivables	40	45	85	35	18	52	7
Payables	9	3	12	4	1	5	0
2001 Market Value	\$ 9,373	\$ 9,443	\$ 18,816	\$ 7,985	\$ 3,045	\$ 11,030	\$ 1,230
2000 Market Value	\$ 10,744	\$ 10,392	\$ 21,136	\$ 9,805	\$ 3,397	\$ 13,202	\$ 1,790

Note: Totals may not agree due to rounding.

(Dollars in millions)				
	LEOFF			WSP
	Plan 1	Plan 2	Total	Plan 1
	Fund 819	Fund 829		Fund 615
2001 Assets:				
Cash & Short-Term	\$ 73	\$ 40	\$ 113	\$ 10
Fixed Income	1,265	608	1,873	168
Commingled Funds	1,916	921	2,837	254
Corporate Stocks	203	97	300	27
Venture Capital	470	226	697	62
Leveraged Buy-outs	243	117	360	32
Real Estate	391	188	579	52
<i>Invested Assets</i>	\$ 4,562	\$ 2,197	\$ 6,759	\$ 606
Receivables	16	13	29	2
Payables	0	0	1	0
2001 Market Value	\$ 4,578	\$ 2,210	\$ 6,788	\$ 608
2000 Market Value	\$ 5,260	\$ 2,378	\$ 7,638	\$ 688

Note: Totals may not agree due to rounding.

Section V

Financial Activity

Financial Activity

Summary of Financial Activity

(Dollars in Millions)							
	PERS			TRS			SERS
	Plan 1 Fund 631	Plan 2 Fund 641	Total	Plan 1 Fund 632	Plan 2/3 Fund 642	Total	Plan 2/3 Fund 633
2000 Market Value	\$ 10,744	\$ 10,392	\$ 21,136	\$ 9,805	\$ 3,397	\$ 13,202	\$ 1,790
Revenue							
Contributions							
Employee*	\$ 52	\$ 74	\$ 126	\$ 69	\$ 13	\$ 82	\$ 9
Employer/State	119	75	193	169	87	256	17
Total Contributions	\$ 170	\$ 149	\$ 319	\$ 238	\$ 100	\$ 339	\$ 27
Investment Return	\$ (1,023)	\$ (1,022)	\$ (2,045)	\$ (1,175)	\$ (436)	\$ (1,611)	\$ (137)
Restorations	2	1	3	1	0	2	0
Transfers In	0	0	1	0	0	0	21
Miscellaneous	0	0	0	0	0	0	0
Total Revenue	\$ (850)	\$ (872)	\$ (1,722)	\$ (936)	\$ (335)	\$ (1,270)	\$ (89)
Disbursements							
Withdrawn Annuities	—	—	—	\$ 242	—	\$ 242	—
Monthly Benefits	515	41	556	638	9	647	1
Refunds	6	31	37	3	5	8	2
Total Benefits	\$ 521	\$ 72	\$ 592	\$ 884	\$ 14	\$ 898	\$ 2
Transfers Out	\$ 1	\$ 5	\$ 5	\$ 0	\$ 4	\$ 4	\$ 468
Expenses	0	0	0	0	0	0	0
Total Disbursements	\$ 521	\$ 77	\$ 598	\$ 884	\$ 18	\$ 902	\$ 470
2001 Market Value	\$ 9,373	\$ 9,443	\$ 18,816	\$ 7,985	\$ 3,045	\$ 11,030	\$ 1,230

Note: Totals may not agree due to rounding.

*Does not include Plan 3 Contributions

Summary of Financial Activity – Continued

(Dollars in Millions)				
	LEOFF			WSP
	<i>Plan 1 Fund 819</i>	<i>Plan 2 Fund 829</i>	<i>Total</i>	<i>Plan 1 Fund 615</i>
2000 Market Value	\$ 5,260	\$ 2,378	\$ 7,638	\$ 688
Revenue				
Contributions				
Employee	\$ 0	\$ 38	\$ 38	\$ 1
Employer/State	0	38	38	0
<i>Total Contributions</i>	\$ 0	\$ 75	\$ 75	\$ 1
Investment Return	\$ (499)	\$ (236)	\$ (734)	\$ (66)
Restorations	0	0	0	0
Transfers In	0	0	0	0
Miscellaneous	0	0	0	0
Total Revenue	\$ (499)	\$ (160)	\$ (659)	\$ (65)
Disbursements				
Withdrawn Annuities				
Monthly Benefits	\$ 183	\$ 2	\$ 185	\$ 16
Refunds	0	6	6	0
<i>Total Benefits</i>	\$ 183	\$ 8	\$ 191	\$ 16
Transfers Out	\$ 0	\$ 0	\$ 0	\$ 0
Expenses	0	0	0	0
Total Disbursements	\$ 183	\$ 8	\$ 191	\$ 16
2001 Market Value	\$ 4,578	\$ 2,210	\$ 6,788	\$ 608

Note: Totals may not agree due to rounding.

Section VI

Actuarial Assumptions and Experience

Actuarial Assumptions and Experience

Economic Assumptions

Growth in Membership

It is assumed that the number of active members in each system will increase according to the rates shown below:

<u>PERS</u>	<u>TRS</u>	<u>SERS</u>	<u>LEOFF</u>	<u>WSP</u>
1.25%	.90%	1.25%	1.25%	1.25%

Future Salaries

General (inflation) salary increases of 4.5% apply to all members. This excludes longevity, merit or step increases that usually apply to members in the early part of their careers.

Post-retirement Increases

PERS Plan 1, TRS Plan 1: A uniform COLA as described in the plan provisions.

LEOFF Plan 1: Assumes 3.50% increases. This rate is equal to assumed 3.50% increases in the Average CPI Seattle, Washington, Urban Wage Earners and Clerical Workers, all items.

WSP Plan 1, PERS Plan 2, TRS Plan 2/3, SERS Plan 2/3 and LEOFF Plan 2: Assumes 3.00% increases. This rate is the maximum allowed under the plan provisions, given the higher assumed 3.50% increases in the Average CPI Seattle, Washington, Urban Wage Earners and Clerical Workers, all items.

Interest on Member Contributions

All systems: Interest on member contributions is assumed to accrue at an annual rate of 5.5 percent, compounded quarterly.

Return on Investment Earnings

All systems: The future investment earnings on the assets of the systems are assumed to accrue at an annual rate of 8 percent, compounded annually.

Valuation of Assets

All systems: Valuation assets are at market value with gains/losses recognized over a four-year period. For the valuation year 2000 and thereafter, 25 percent of the gain/loss is recognized each year. For years prior to the 2000 valuation year the gain/loss is recognized over three years at 50%, 30% and 20%.

The gain or loss is calculated on assets held by the State Investment Board.

The gain/loss is calculated as actual earnings in excess of earnings based on the valuation interest rate.

Plan 2 Member Contributions

In the long term the member contribution rate is expected to approach half the entry age normal cost rate.

Administrative Expenses

All systems: The administrative expenses of these systems are paid primarily by the employers. This cost will be added to the contribution rates derived within this report. No allowance is made for future expenses in the actuarial determinations set out in this report.

Demographic Assumptions

Age and service shown are at the beginning of the valuation year. Exits are assumed to occur at the end of the valuation year for TRS 2/3 mid-year for PERS, LEOFF and WSP, July 1st for TRS 1 and September 1st for SERS. (The service and pay is as of July 1st and September 1st prior to the valuation date for TRS 1 and SERS 2/3 respectively.) The service on the exit date is used to determine which retirement rate to use.

Probability of Service Retirement:

<i>PERS</i>						
Probability of Service Retirement						
Age	Plan 1		Plan 2/3 Service less than 30 years		Plan 2/3 Service greater than or equal to 30 years	
	Male	Female	Male	Female	Male	Female
50	64%	40%	---	---	---	---
51	57%	43%	---	---	---	---
52	52%	37%	---	---	---	---
53	52%	33%	---	---	---	---
54	52%	52%	---	---	---	---
55	22%	26%	5%	5%	7%	7%
56	22%	18%	5%	5%	7%	7%
57	22%	18%	5%	5%	7%	7%
58	22%	22%	10%	5%	14%	7%
59	22%	37%	10%	5%	14%	7%
60	22%	18%	14%	14%	21%	21%
61	22%	22%	14%	18%	21%	27%
62	40%	37%	33%	30%	50%	45%
63	26%	26%	26%	26%	39%	39%
64	30%	26%	79%	82%	90%	90%
65	49%	46%	52%	49%	52%	49%
66	30%	26%	30%	30%	30%	30%
67	30%	26%	22%	26%	22%	26%
68	30%	26%	22%	26%	22%	26%
69	30%	26%	26%	22%	26%	22%
70+	100%	100%	100%	100%	100%	100%

<div> <div>TRS</div> <div>Probability of Service Retirement</div> </div>								
Age	Plan 1		Plan 1		Plan 2/3		Plan 2/3	
	Service less than or more than 30 years		Service equal to 30 years		Service less than 30 years		Service greater than or equal to 30 years	
	Male	Female	Male	Female	Male	Female	Male	Female
-53	25%	20%	40%	30%	---	---	---	---
54	25%	20%	40%	30%	5%	3%	8%	5%
55	20%	20%	35%	30%	5%	5%	8%	8%
56	20%	20%	35%	30%	5%	10%	8%	15%
57	20%	20%	40%	30%	5%	10%	8%	15%
58	20%	25%	45%	30%	5%	10%	8%	15%
59	20%	25%	45%	30%	20%	15%	30%	23%
60	20%	20%	60%	35%	40%	20%	60%	30%
61	45%	35%	60%	55%	30%	30%	45%	45%
62	30%	25%	60%	50%	30%	30%	45%	45%
63	25%	20%	60%	50%	60%	50%	90%	75%
64	45%	45%	90%	90%	50%	50%	50%	50%
65	45%	35%	90%	90%	50%	30%	50%	30%
66	35%	30%	90%	90%	50%	25%	50%	25%
67	30%	35%	90%	90%	50%	25%	50%	25%
68	30%	25%	90%	90%	50%	40%	50%	40%
69+	100%	100%	100%	100%	100%	100%	100%	100%

Approximately 50% of those eligible to retire in plan 3 elect to defer their benefit.

<i>SERS</i> Probability of Service Retirement				
Age	Service less than 30 Years		Service greater than or Equal to 30 Years	
	Male	Female	Male	Female
54	2%	2%	4%	4%
55	5%	5%	7%	7%
56	5%	5%	7%	7%
57	5%	5%	7%	7%
58	10%	5%	14%	7%
59	10%	5%	14%	7%
60	14%	14%	21%	21%
61	14%	18%	21%	27%
62	33%	30%	50%	45%
63	26%	26%	39%	39%
64	79%	82%	90%	90%
65	52%	49%	52%	49%
66	30%	30%	30%	30%
67	22%	26%	22%	26%
68	22%	26%	22%	26%
69+	100%	100%	100%	100%

Approximately 50% of those eligible to retire in plan 3 elect to defer their benefit.

<i>LEOFF</i> Probability of Service Retirement		
Age	Plan 1	Plan 2
50	9%	10%
51	7%	10%
52	8%	10%
53	8%	16%
54	10%	19%
55	16%	24%
56	16%	25%
57	16%	25%
58	23%	33%
59	23%	33%
60	23%	33%
61	28%	37%
62	28%	37%
63	28%	37%
64	40%	48%
65+	100%	100%

<i>WSP</i> Probability of Service Retirement	
Age	Probability
up to 50	31%
51-55	23%
56-59	28%
60+	100%

Mortality:

Probability of Mortality RP-2000 Combined Healthy Table		
Age	Male Mortality	Female Mortality
20	0.0345%	0.0191%
25	0.0376%	0.0207%
30	0.0444%	0.0264%
35	0.0773%	0.0475%
40	0.1079%	0.0706%
45	0.1508%	0.1124%
50	0.2138%	0.1676%
55	0.3624%	0.2717%
60	0.6747%	0.5055%
65	1.2737%	0.9706%
70	2.2206%	1.6742%
75	3.7834%	2.8106%
80	6.4368%	4.5879%
85	11.0757%	7.7446%
90	18.3408%	13.1682%
95	26.7491%	19.4509%

Mortality is based on the RP-2000 Combined Healthy Table published by the Society of Actuaries.

To account for the experience of particular groups of employees, an age adjustment (setback or setforward) was applied to the table. For example, with a three-year setback, a 50-year-old is assumed to have the mortality of a 47-year-old. With a three-year setforward, a 50-year-old is assumed to have the mortality of a 53-year-old.

Beneficiaries are assumed to experience the mortality of the opposite sex of the member.
Active members use the same table as retired members.

Healthy Mortality Assumptions:

Healthy Mortality Assumptions RP-2000 Combined Healthy Table		
System	Age Adjustment	
	Male	Female
PERS	0	0
TRS	-2	-2
SERS	0	-2
LEOFF	0	0
WSP	0	0

Disabled Mortality Assumptions:

Disabled Mortality Assumptions RP-2000 Combined Healthy Table				
	Age Adjustment		Minimum Rate	
	Male	Female	Male	Female
PERS	6	6	5.00%	3.50%
TRS	5	2	3.00%	1.75%
SERS	5	2	3.00%	3.00%
LEOFF	2	2	0.50%	0.50%
WSP	2	2	0.50%	0.50%

Probability of Disablement:

PERS Probability of Disablement				
Age	Plan 1		Plan 2/3	
	Male	Female	Male	Female
20	0.0000%	0.0000%	0.0000%	0.0000%
25	0.0000%	0.0000%	0.0052%	0.0000%
30	0.0000%	0.0000%	0.0115%	0.0056%
35	0.0310%	0.0319%	0.0156%	0.0194%
40	0.0762%	0.0710%	0.0235%	0.0275%
45	0.1481%	0.1431%	0.0476%	0.0467%
50	0.2542%	0.3023%	0.0922%	0.1003%
55	0.8240%	0.6411%	0.2630%	0.2782%
60 *	1.1701%	0.6502%	0.7603%	0.7681%
64	0.0000%	0.0000%	1.0244%	1.0271%

*No Plan 1 disabilities are assumed for members beyond 60 years of age.

TRS Probability of Disablement				
Age	Plan 1		Plan 2/3	
	Male	Female	Male	Female
20	0.0013%	0.0014%	0.0003%	0.0003%
25	0.0091%	0.0092%	0.0024%	0.0019%
30	0.0187%	0.0190%	0.0048%	0.0040%
35	0.0321%	0.0326%	0.0083%	0.0068%
40	0.0428%	0.0434%	0.0111%	0.0091%
45	0.0944%	0.0957%	0.0244%	0.0201%
50	0.1634%	0.1656%	0.0422%	0.0347%
55	0.3347%	0.3393%	0.0866%	0.0712%
60	0.4686%	0.4750%	0.1212%	0.0997%
64	0.0000%	0.0000%	0.1865%	0.1534%

**No TRS Plan 1 disabilities are assumed for members beyond 60 years of age.*

SERS Probability of Disablement		
Age	Plan 2/3	
	Male	Female
20	0.0000%	0.0000%
25	0.0000%	0.0000%
30	0.0000%	0.0048%
35	0.0081%	0.0176%
40	0.0258%	0.0164%
45	0.0568%	0.0201%
50	0.1102%	0.0738%
55	0.3428%	0.2876%
60	0.9292%	0.5589%
64	1.2272%	0.6589%

<i>LEOFF</i>		
Probability of Disablement		
Age	Plan 1	Plan 2
20	0.10%	0.00%
25	0.10%	0.00%
30	0.80%	0.00%
35	1.48%	0.00%
40	2.35%	0.01%
45	4.24%	0.02%
50	7.34%	0.05%
55	10.35%	0.10%
60+	12.17%	0.10%

LEOFF Plan 1 disability retirements are assumed to continue after service retirement begins.

WSP Probability of Disablement:

At all ages, the probability of disablement is 0.1 percent.

Probability of Termination:

<i>PERS</i> Probability of Termination Plan 1, 2 and 3		
Years of Service	Male	Female
0	25.90%	26.39%
1	15.46%	16.72%
2	10.20%	11.72%
3	7.69%	9.25%
4	6.39%	7.69%
5	5.31%	6.53%
6	4.35%	5.87%
7	4.07%	5.31%
8	3.73%	4.69%
9	3.54%	4.11%
10	3.25%	3.87%
11	3.10%	3.54%
12	3.05%	3.15%
13	2.86%	3.10%
14	2.76%	3.00%
15	2.66%	2.86%
16	2.37%	2.62%
17	2.13%	2.27%
18	1.83%	1.98%
19	1.49%	1.73%
20	1.14%	1.44%
21	0.95%	1.14%
22	0.75%	0.95%
23	0.60%	0.80%
24	0.55%	0.55%
25	0.50%	0.45%
26+	0.40%	0.40%

<i>TRS</i> Probability of Termination Plan 1, 2 and 3		
Years of Service	Male	Female
0	9.65%	10.00%
1	6.00%	7.00%
2	4.00%	5.50%
3	4.00%	4.50%
4	3.50%	4.00%
5	3.00%	3.50%
6	2.20%	3.00%
7	2.10%	2.60%
8	2.00%	2.00%
9	1.90%	1.95%
10	1.80%	1.90%
11	1.80%	1.70%
12	1.00%	1.40%
13	1.00%	1.40%
14	1.00%	1.40%
15	1.00%	1.40%
16	0.95%	1.10%
17	0.90%	0.90%
18	0.80%	0.90%
19	0.70%	0.90%
20	0.50%	0.50%
21	0.50%	0.50%
22	0.50%	0.50%
23	0.50%	0.50%
24	0.50%	0.50%
25	0.50%	0.50%
26+	0.50%	0.50%

<i>SERS 2/3</i>		
Probability of Termination		
Years of Service	Male	Female
0	25.90%	19.45%
1	16.09%	12.87%
2	11.54%	10.07%
3	10.07%	7.60%
4	8.52%	6.58%
5	7.28%	5.97%
6	6.06%	5.31%
7	5.59%	5.21%
8	4.93%	4.83%
9	4.64%	4.64%
10	4.26%	4.50%
11	4.02%	4.45%
12	3.83%	4.40%
13	3.73%	4.40%
14	3.25%	4.21%
15	2.96%	4.26%
16	2.66%	3.78%
17	2.42%	3.44%
18	2.03%	3.10%
19	1.59%	2.62%
20	1.24%	2.03%
21	1.14%	1.59%
22	0.85%	1.29%
23	0.65%	0.85%
24	0.65%	0.75%
25	0.50%	0.75%
26+	0.50%	0.75%

<i>LEOFF</i> Probability of Termination Plan 1 and Plan 2	
Years of Service	Probability
0	10.43%
1	4.69%
2	2.37%
3	2.08%
4	1.98%
5	1.94%
6	1.94%
7	1.94%
8	1.67%
9	1.67%
10	1.67%
11	1.42%
12	1.42%
13	1.42%
14	0.99%
15	0.99%
16	0.99%
17	0.70%
18	0.70%
19	0.70%
20	0.70%
21	0.70%
22	0.70%
23	0.70%
24	0.70%
25	0.70%
26	0.70%
27	0.70%
28	0.70%
29+	0.00%

<i>WSP</i> Probability of Termination	
Years of Service	Termination Rate
0-4	2.4%
5-9	1.4%
10-14	0.9%
15-19	0.6%
20-25	0.2%
25+	0.0%

Termination with Vested Benefit:

A plan 1 or 2 member who terminates may have a choice as to what to do with their retirement benefit. They may withdraw their own accumulated contributions and destroy their service credit (i.e., they will not receive a service retirement benefit at a later date). Those that are vested may decide to leave their contributions and receive a retirement upon reaching retirement age. The following tables demonstrate the probability that a vested member who terminates employment will leave their accumulated contributions. We refer to this as the Probability of Vesting Upon Termination.

Deferred vested members are assumed to commence benefits if eligible for a subsidized 3% early retirement factor at the plans earliest eligible age, otherwise they would wait until the unreduced retirement age.

<i>PERS</i>		
Probability of Vesting Upon Termination		
<i>(for those not eligible to early retire)</i>		
Years of Service	Plan 1	Plan 2/3
<5	0%	0%
5	35%	35%
6	45%	35%
7	45%	40%
8	45%	40%
9	45%	45%
10	45%	45%
11	45%	45%
12	45%	45%
13	45%	45%
14	55%	45%
15	55%	50%
16	60%	50%
17	60%	55%
18	60%	55%
19	60%	60%
20	60%	60%
21	60%	60%
22	60%	60%
23	60%	60%
24	60%	60%
25	65%	65%
26	65%	65%
27	75%	75%
28	75%	75%
29	75%	75%
30+	100%	100%

<i>TRS</i>		
Probability of Vesting Upon Termination		
<i>(for those not eligible to early retire)</i>		
Years of Service*	Plan 1	Plan 2/3
<4	0%	0%
4	65%	60%
5	65%	60%
6	75%	60%
7	75%	60%
8	75%	65%
9	75%	65%
10	75%	65%
11	75%	65%
12	75%	70%
13	85%	70%
14	85%	70%
15	85%	70%
16	85%	80%
17	85%	80%
18	85%	85%
19	85%	85%
20	90%	90%
21	90%	90%
22	90%	90%
23	90%	90%
24	90%	90%
25	90%	90%
26	95%	95%
27+	100%	100%

*Service at start of the year, exit is assumed to occur at the end of the year.

SERS Probability of Vesting Upon Termination <i>(for those not eligible to early retire)</i> Years of Service* Plan 2/3	
<4	0%
4	50%
5	50%
6	55%
7	55%
8	55%
9	60%
10	60%
11	60%
12	60%
13	65%
14	65%
15	70%
16	70%
17	70%
18	70%
19	70%
20	75%
21	80%
22	80%
23	80%
24	80%
25	80%
26+	100%

LEOFF Probability of Vesting Upon Termination <i>(for those not eligible to early retire)</i> Years of Service Plan 2/3	
<5	0%
5	15%
6	15%
7	15%
8	15%
9	15%
10	15%
11	15%
12	15%
13	15%
14	15%
15	15%
16	15%
17	15%
18	35%
19	35%
20	75%
21+	100%

*Service at start of the year, exit is assumed to occur at the end of the year.

<i>WSP</i> Probability of Vesting Upon Termination	
Years of Service	Percent Vested
<5	0%
5	15%
6	15%
7	15%
8	15%
9	15%
10	15%
11	15%
12	15%
13	15%
14	15%
15	15%
16	15%
17	15%
18	35%
19	35%
20	75%
21+	100%

Portability:

Portability increases the liabilities associated with dual members. The increased costs are a function of their salary and service in their later system. The future retirement benefits of each system are increased to account for increased benefits due to the portability statutes.

System	Plan	Load
PERS	1	0.2%
	2	0.3%
TRS	1	0.3%
	2	0.1%
	3	0.1%
SERS	1	0.3%
	2	0.3%
LEOFF	1	N/A
	2	0.1%
WSP	1	0.0%

Step Salary Increases:

The following tables only include step increases. They do not include general salary increases. The salary ratio is the final salary over the current salary.

<i>PERS</i> Step Salary Increases Plan 1, 2 and 3		
Years of Service	Percent Increases	Salary Ratio
1	6.1%	1.275
2	4.8%	1.201
3	3.8%	1.146
4	2.9%	1.104
5	2.1%	1.073
6	1.3%	1.051
7	1.0%	1.038
8	0.8%	1.027
9	0.6%	1.019
10	0.4%	1.013
11	0.3%	1.009
12	0.2%	1.006
13	0.1%	1.004
14	0.1%	1.003
15	0.1%	1.002
16	0.1%	1.001
17	0.0%	1.000
18	0.0%	1.000
19	0.0%	1.000
20	0.0%	1.000
21+	0.0%	1.000

<i>TRS</i> Step Salary Increases Plan 1, 2 and 3		
Years of Service	Percent Increase	Salary Ratio
1	6.2%	1.476
2	4.4%	1.390
3	4.2%	1.331
4	3.5%	1.278
5	3.1%	1.235
6	2.7%	1.197
7	2.6%	1.166
8	2.3%	1.136
9	2.1%	1.111
10	1.9%	1.088
11	1.7%	1.068
12	1.6%	1.050
13	1.4%	1.033
14	0.9%	1.019
15	0.8%	1.010
16	0.2%	1.002
17	0.0%	1.000
18	0.0%	1.000
19	0.0%	1.000
20	0.0%	1.000
21+	0.0%	1.000

SERS Step Salary Increases Plan 2/3		
Years of Service	Percent Increases	Salary Ratio
1	7.0%	1.280
2	3.9%	1.196
3	2.8%	1.151
4	2.3%	1.120
5	2.2%	1.095
6	1.5%	1.071
7	1.2%	1.055
8	1.0%	1.043
9	0.8%	1.032
10	0.7%	1.024
11	0.7%	1.017
12	0.3%	1.010
13	0.3%	1.007
14	0.2%	1.004
15	0.1%	1.002
16	0.1%	1.001
17	0.0%	1.000
18	0.0%	1.000
19	0.0%	1.000
20	0.0%	1.000
21+	0.0%	1.000

<i>LEOFF</i> Step Salary Increases Plan 1 and Plan 2			WSP Step Salary Increases		
Years of Service	Percent Increases	Salary Ratio	Years of Service	Percent Increase	Salary Ratio
1	11.7%	1.810	1	6.0%	1.678
2	8.1%	1.621	2	6.0%	1.583
3	6.6%	1.499	3	6.0%	1.493
4	4.5%	1.406	4	6.0%	1.409
5	3.2%	1.346	5	6.0%	1.329
6	2.5%	1.304	6	6.0%	1.254
7	2.2%	1.272	7	1.3%	1.183
8	2.0%	1.245	8	1.3%	1.168
9	2.0%	1.221	9	1.3%	1.153
10	2.0%	1.197	10	1.3%	1.138
11	1.9%	1.173	11	1.3%	1.123
12	1.8%	1.151	12	1.3%	1.109
13	1.7%	1.131	13	1.3%	1.095
14	1.6%	1.112	14	1.3%	1.081
15	1.6%	1.095	15	1.3%	1.067
16	1.6%	1.077	16	1.3%	1.053
17	1.6%	1.060	17	1.3%	1.040
18	1.6%	1.044	18	1.3%	1.026
19	1.4%	1.027	19	1.3%	1.013
20	1.3%	1.013	20	0.0%	1.000
21 +	0.0%	1.000	21 +	0.0%	1.000

Development of Average Final Compensation (AFC):

PERS, TRS and WSP Plans 1 benefit is a function of the highest two consecutive years salary or Average Final Compensation (AFC). Included in the salary used to compute the AFC may be some items of pay that are not part of regular salary. These include cashout of unused sick and annual leave, etc. There is a great incentive for members to boost their AFC through working additional overtime since they will reap the rewards for a lifetime.

The cost associated with some increases to the AFC is billed back to the employer as an "excess compensation" billing according to RCW 41.50.150. The net increases in projected AFC are loaded as follows:

	<u>AFC Load</u>
PERS 1	5.0%
TRS 1	1.0%
WSP	7.5%

The Plans 2/3 have a 60 month AFC that includes overtime but does not include any cashout of sick or annual leave. This removes the need to load the projected AFC. LEOFF 1 benefits are based on base salary without overtime or cashout of leave.

Percent Married:

Percent Married is the percentage of active members (eligible for a death benefit) whose eligible spouse, if any, elected a survivor annuity upon the member's death. As with percent vesting, younger members often choose a refund of their contributions over any survivor annuity. This is not the case for Plan 3. For members at the older ages most spouses (and members) are eligible for death benefits.

<i>PERS</i>						
Percent Married						
	Plan 1		Plan 2		Plan 3	
Age	Male	Female	Male	Female	Male	Female
20	N/A	N/A	0%	0%	20%	35%
25	N/A	N/A	0%	0%	48%	63%
30	N/A	N/A	0%	0%	64%	73%
35	N/A	N/A	0%	0%	72%	75%
40	45%	10%	5%	0%	77%	76%
45	55%	40%	5%	0%	79%	76%
50	65%	45%	20%	10%	80%	76%
55	70%	45%	40%	20%	81%	72%
60	70%	45%	65%	20%	81%	67%
65	70%	45%	65%	20%	79%	58%
70+	70%	45%	65%	20%	77%	47%

TRS						
Percent Married						
Age	Plan 1		Plan 2		Plan 3	
	Male	Female	Male	Female	Male	Female
20	N/A	N/A	0%	0%	20%	35%
25	N/A	N/A	0%	0%	48%	63%
30	N/A	N/A	0%	0%	64%	73%
35	N/A	N/A	0%	0%	72%	75%
40	65%	55%	0%	0%	77%	76%
45	65%	55%	0%	0%	79%	76%
50	65%	45%	0%	15%	80%	76%
55	65%	45%	50%	40%	81%	72%
60	75%	35%	75%	50%	81%	67%
65	100%	35%	75%	67%	79%	58%
70+	100%	35%	75%	67%	77%	47%

SERS				
Percent Married				
Age	Plan 2		Plan 3	
	Male	Female	Male	Female
20	0%	0%	20%	35%
25	0%	0%	48%	63%
30	0%	0%	64%	73%
35	0%	0%	72%	75%
40	5%	0%	77%	76%
45	5%	0%	79%	76%
50	20%	10%	80%	76%
55	40%	20%	81%	72%
60	65%	20%	81%	67%
65	65%	20%	79%	58%
70+	65%	20%	77%	47%

<i>LEOFF</i> Percent Married		
Age	Plan 1	Plan 2
20	N/A	0%
25	N/A	0%
30	N/A	0%
35	N/A	0%
40	60%	0%
45	60%	0%
50	60%	25%
55	60%	25%
60	60%	50%
65	60%	50%
70+	60%	50%

<i>WSP</i> Percent Married	
Age	Plan 1
20	N/A
25	N/A
30	N/A
35	N/A
40	60%
45	60%
50	60%
55	60%
60	60%
65	60%
70+	60%

Certain and Life Annuities:

In many of the plans the standard retirement option is a monthly benefit payable for the life of the member. If the retiree dies before the total of payments exceed member's accumulated contributions, the difference is paid to a beneficiary. For active members, this liability is valued using a certain and life annuity, where the certain period is equal to approximately the ratio of the saving fund to the annual benefit. This ratio is shown below for those plans it applies to:

<u>Plan</u>	<u>Years Certain</u>
PERS 1	3
PERS 2	3
TRS 1 Disability Benefit	11 *
TRS 2	4
SERS 2	3
LEOFF 2	5

*Only disabled members get this without a reduction in their benefit. The certain period applies to only the "annuity" portion of their benefit, typically 30% of the total benefit.

LEOFF 1 and WSP retire at younger ages and receive a survivor or child benefit which means the value of this guarantee is very low.

Military Service:

PERS Military Service Credit

Members of PERS 1 may receive service credit for certain military service. A member may include up to 5 years of military credit in their benefit calculation after completing 25 years of retirement system service.

Assumptions

48% of males retiring with 25 or more years of service have an average of 37 months of military service. This is an average of 1.48 years for males.

1% of females retiring with 25 or more years of service have an average of 35 months of military service. This is an average of 0.03 years for females.

WSP Military Service Credit

Members of WSP may receive service credit for certain military service. A member may include up to 5 years of military credit in their benefit calculation after completing 25 years of retirement system service.

Recent legislation eliminates non-interruptive military service from the plan, for those commissioned after January 1, 2003.

Assumptions

43% of members retiring with 25 or more years of service from 1996 to 2001 have an average of 32 months of military service. This is an average of 1.15 years of military service for Plan 1 members.

Beneficiary Age:

The beneficiary age is based on an age difference assumption. The age difference is the member age minus the beneficiary age.

Plan/Sex	Age Difference
PERS - Male	3
PERS - Female	-2
TRS - Male	3
TRS - Female	-2
SERS - Male	3
SERS - Female	-2
LEOFF - Male	4
LEOFF - Female	-4
WSP - Male	3
WSP - Female	-2

Economic Experience

	PERS		TRS		SERS
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>	<i>Plan 2/3</i>	<i>Plan 2/3</i>
Investment Return on Valuation Assets					
Actual	2.1%	1.9%	6.8%	6.5%	2.5%
Expected	5.9%	5.9%	10.1%	10.1%	5.9%
Salary Increases					
Actual	3.9%	4.9%	4.8%	6.8%	3.4%
Expected	3.6%	4.7%	6.0%	8.6%	3.4%
COLA					
Actual	Uniform	3.00%	Uniform	3.00%	3.00%
Expected	Uniform	3.00%	Uniform	3.00%	3.00%
Membership Growth					
Actual	0.44%		3.70%		1.30%
Expected	0.94%		1.13%		0.94%

	LEOFF		WSP
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>
Investment Return on Valuation Assets			
Actual	2.1%	2.0%	2.1%
Expected	5.9%	5.9%	5.9%
Salary Increases			
Actual	2.5%	4.6%	3.9%
Expected	4.4%	5.8%	5.1%
COLA			
Actual	3.75%	3.00%	3.00%
Expected	3.50%	3.00%	3.00%
Membership Growth			
Actual	1.83%		1.38%
Expected	0.94%		0.94%

Interest on members contributions is determined by the Director of Retirement Systems. The interest rate is 5.5% compounded quarterly.

The prescribed inflation rate is measured by the Urban Wage Earners and Clerical Workers, Seattle WA, All Items, Series A. The increase from 1999 to 2000 was 3.75%, and is used in the 2001 COLA calculations.

The PERS Plan 1 and a TRS Plan 1 Uniform COLA increase amount on July 1, 2001 was \$1.11 per month for each year of service.

The LEOFF Plan 1 increase is granted on April 1st at the prescribed inflation rate.

The PERS Plan 2, TRS Plan 2/3, SERS Plan 2/3, LEOFF Plan 2 and WSP increase is the prescribed inflation rate, subject to a 60% safety net and a maximum increase of 3% over the year.

The salary increases are for all members who were active at the start and end of the valuation period, except SERS which is for those with 20+ years of service.

Except for the COLA, the actual and expected changes reflect the 9 month period from the prior valuation to the current valuation (15 months for TRS). Depending on when pay increases occur, a pro-rata amount might not give the "true expected value."

Demographic Experience

Ratio of Actual Experience to Expected					
	PERS		TRS		SERS
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>	<i>Plan 2/3</i>	<i>Plan 2/3</i>
Mortality¹	100%	84%	101%	138%	100%
Retirement	97%	71%	109%	61%	60%
Termination	203%	163%	166%	122%	155%

¹ Mortality of service retirees.

Ratio of Actual Experience to Expected			
	LEOFF		WSP
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>
Mortality¹	65%	155%	76%
Retirement	85%	18%	89%
Termination	1,470%	183%	187%

¹ Mortality of service retirees.

Actuarial Gain and Loss

Change in Employer and State Contribution Rate By Source					
	PERS	TRS	SERS*	LEOFF**	WSP
2000 Contribution Rate	1.63 %	2.38 %	1.22 %	1.61 %	0.00 %
Legislation	(0.53)%	(1.33)%	(0.26)%	0.14 %	0.00 %
Adjusted Contribution Rate	1.10 %	1.05 %	0.96 %	1.75 %	0.00 %
Economic Gains/Losses	1.13 %	1.38 %	0.73 %	0.23 %	3.84 %
Demographic Gains/Losses	0.06 %	0.14 %	0.11 %	0.00 %	(0.03)%
Other Gains/Losses	(0.24)%	0.35 %	(0.25)%	0.04 %	0.40 %
Contribution for PERS UAAL	—	—	0.19 %	—	—
2001 Contribution Rate	2.05 %	2.22 %	1.74 %	2.02 %	0.00 %
Change in Normal Costs					
2000 Normal Cost	1.05 %	1.76 %	0.64 %	1.61 %	(24.35)%
Legislation	(0.40)%	(1.11)%	(0.13)%	0.14 %	6.64 %
Adjusted Normal Cost	0.65 %	0.65 %	0.51 %	1.75 %	(17.71)%
Assets	0.48 %	0.40 %	0.47 %	0.21 %	4.40 %
Salaries	0.02 %	(0.22)%	(0.09)%	(0.06)%	(0.66)%
Growth	0.28 %	0.69 %	0.35 %	0.08 %	0.10 %
<i>Economic Gains/Losses</i>	<i>0.78 %</i>	<i>0.88 %</i>	<i>0.73 %</i>	<i>0.23 %</i>	<i>3.84 %</i>
Termination/Return to Work	0.04 %	0.10 %	0.13 %	0.00 %	0.00 %
Retirement	0.00 %	0.00 %	(0.02)%	0.00 %	(0.03)%
<i>Demographic Gains/Losses</i>	<i>0.04 %</i>	<i>0.10 %</i>	<i>0.11 %</i>	<i>0.00 %</i>	<i>(0.03)%</i>
<i>Other Gains/Losses</i>	<i>(0.06)%</i>	<i>(0.13)%</i>	<i>(0.25)%</i>	<i>0.04 %</i>	<i>2.40 %</i>
Total	1.41 %	1.50 %	1.10 %	2.02 %	(11.50)%
2001 Normal Cost	1.41 %	1.50 %	1.10 %	2.02 %	0.00 %
Change in UAAL Rate					
2000 UAAL Rate	0.58 %	0.62 %		(9.11)%	
Legislation	(0.13)%	(0.22)%		0.36 %	
Adjusted UAAL Rate	0.45 %	0.40 %		(8.75)%	
Assets	0.34 %	0.59 %		1.32 %	
Salaries	0.01 %	(0.10)%		(0.16)%	
Growth	0.00 %	0.01 %		0.04 %	
Inflation (CPI)	0.00 %	0.00 %		0.05 %	
<i>Economics Gains/Losses</i>	<i>0.35 %</i>	<i>0.50 %</i>		<i>1.25 %</i>	
Termination/Return to Work	0.02 %	0.03 %		0.00 %	
Retirement	0.00 %	0.01 %		0.00 %	
<i>Demographic Gains/Losses</i>	<i>0.02 %</i>	<i>0.04 %</i>		<i>0.00 %</i>	
<i>Other Gains/losses</i>	<i>(0.18)%</i>	<i>(0.22)%</i>		<i>0.26 %</i>	
Total	0.64 %	0.72 %		(7.24)%	
2001 UAAL Rate	0.64 %	0.72 %		0.00 %	

*The SERS rate includes the UAAL rate for PERS Plan 1.

**The LEOFF contribution rate is the State's portion for Plan 2 (20% of the Normal Cost) plus the UAAL rate for Plan 1.

Section VII

Provisions of the Systems

Provisions of the Systems

Summary of the Provisions of the Washington Retirement Systems

All actuarial calculations in this report are based upon the following provisions of the individual retirement systems which include the Laws of 2001.

- ✓ Public Employees Retirement System, Chapter 41.40, 41.31, 41.31A RCW;
- ✓ Teachers Retirement System, Chapter 41.32, 41.31, 41.31A RCW;
- ✓ School Employees Retirement System, Chapter 41.35, 41.31A RCW;
- ✓ Law Enforcement Officers and Fire Fighters Retirement System, Chapter 41.26 RCW; and
- ✓ Washington State Patrol Retirement System, Chapter 43.43 RCW.

The benefit and contribution provisions of these laws are summarized briefly for reference purposes. This summary encompasses the major provisions of the law. It does not attempt to cover all of the detailed provisions. In addition to the benefit provisions specific to each system, PERS, TRS, SERS, LEOFF and WSP are also subject to portability provisions of Chapter 41.54 RCW and funding provisions of Chapter 41.45 RCW.

Plan Effective Dates:

	PERS		TRS			SERS	
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 3</i>	<i>Plan 2</i>	<i>Plan 3</i>
Opened	1947	1977	1938	1977	1996	2000*	2000
Closed	1977	--	1977	1996	--	2000	--

*School Employees formerly in PERS 2.

	LEOFF		WSP
	<i>Plan 1</i>	<i>Plan 2</i>	<i>Plan 1</i>
Open	1970	1977	1947
Closed	1977	--	--

Contribution Rates:

Plan 1

The PERS 1 and TRS 1 member contribution rate is 6 percent. The LEOFF 1 member and employer rate is 6 percent if there is an unfunded liability and zero if there is a surplus. Employers and the state absorb all increases in rates.

WSP

The WSP 1 member rate was reduced from 7 percent to 3 percent on July 1, 2000. Effective July 1, 2001 the member rate was reduced to 2 percent. If the Aggregate Normal Cost were to rise above 4 percent, the member would share half the cost with the employer.

Plan 2

The member contribution rate is half of the amount necessary to fund the Plan. Employers and the state pay the other half.

PERS 2 and TRS 2 members contribution rates are not affected by gain-sharing as these costs are borne by the Employers.

Plan 3

Employees do not contribute to the defined benefit plan. Employers pay the full contribution rate.

Retirement Eligibility:

	PERS		TRS			SERS	
	Plan 1	Plan 2	Plan 1	Plan 2	Plan 3	Plan 2	Plan 3
Normal Retirement	60 & 5 55 & 25 30 yrs	65 & 5	60 & 5 55 & 25 30 yrs	65 & 5	65 & 10 65 & 5*	65 & 5	65 & 10 65 & 5*
Early Retirement	n/a	55 & 20	n/a	55 & 20	55 & 10	55 & 20	55 & 10

**If one year is after age 54, or five years were earned under Plan 2 (by July 1, 1996 for TRS and September 1, 2000 for SERS)*

	LEOFF		WSP
	Plan 1	Plan 2	Plan 1
Normal Retirement	50 & 5	53 & 5	55 & 5 25 yrs
Early Retirement	n/a	50 & 20	n/a

Vesting

Members are entitled to a retirement benefit after 5 years of service. Members who leave service and do not withdraw their accumulated contributions are eligible for a continuing benefit upon reaching normal retirement age.

Plan 3 vesting is 5 or 10 years as described above under retirement eligibility.

Service Retirement Benefit Formula:

Plan 1

Benefit is $2\% \times \text{salary} \times \text{years of service}$. A graded scale applies to LEOFF 1 members with less than 20 years of service. Plan 1 benefits are capped at 60% of salary, WSP benefits are capped at 75% of salary. Salary is averaged over 1 year for LEOFF 1, and over 2 years for PERS 1, TRS 1 and WSP.

Plan 2

Benefit is $2\% \times \text{salary} \times \text{years of service}$. Salary is averaged over 5 years.

Plan 3

Benefit is $1\% \times \text{salary} \times \text{years of service}$. Salary is averaged over 5 years.

Pre-Retirement Adjustments:

LEOFF 2 and Plan 3 members who have completed 20 years of service will have their retirement allowance increased by 0.25% for each month from the date of separation to the date the retirement allowance starts.

Post-Retirement Adjustments:

Adjustment Type	PERS		TRS		SERS
	Plan 1	Plan 2	Plan 1	Plan 2/3	Plan 2/3
	Uniform COLA	CPI up to 3.0%	Uniform COLA	CPI up to 3.0%	CPI up to 3.0%

Adjustment Type	LEOFF		WSP
	Plan 1	Plan 2	Plan 1
	Full CPI	CPI up to 3.0%	CPI up to 3.0%

The Uniform COLA for PERS 1 and TRS 1 is payable to members age 66 or older who have been retired at least one year. An annual increase is granted each July 1 to eligible members. The initial annual increase amount on July 1, 1995 was 59 cents per month per year of service. The annual increase amount is calculated as the previous annual increase amount plus any gain-sharing increase amount in the year, all increased by three percent. The annual increase amount was \$1.14 on July 1, 2002. Gain-sharing is described below.

Minimum Benefit

The minimum benefit for PERS 1 and TRS 1 on July 1, 1995 was \$24.22 per month per year of service. Beginning July 1, 1996 the minimum benefit was increased by the Uniform COLA increase amount. The minimum benefit was \$30.58 on July 1, 2002.

The minimum benefit for WSP on July 1, 1997 was \$20.00 per month per year of service. Beginning July 1, 1999, the minimum benefit was increased by the Uniform COLA increase amount each year. The minimum was increased to \$20.77 on July 1, 1999, and to \$21.56 on July 1, 2000, and \$22.38 on July 1, 2001. Effective January 1, 2003 the minimum will be increased by 3% to \$23.05. Thereafter, the minimum will be increased by 3% each January 1st.

Withdrawal From Membership

Accumulated employee contributions plus interest are refunded upon withdrawal from membership. The current interest rate is 5.5 percent compounded quarterly.

Gain-sharing

Gain-sharing applies to PERS, TRS and SERS and is the enhancement of benefits for Plan 1 and Plan 3. Gain-sharing applies if there is an extraordinary investment gain as set out in Chapter 41.31, 41.31A RCW (compound average annual return in excess of 10 percent over a 4 year period).

The first gain-sharing was on July 1, 1998; thereafter, it occurs on January 1 of even-numbered years. Gain-sharing is given to Plan 1 as an additional Uniform COLA increase amount. Gain-sharing is given to Plan 3 as a transfer payment from the Plan 2 and Plan 3 defined benefit plan assets to the Plan 3 defined contribution plan. PERS 2, TRS 2 and SERS 2 members contribution rates are not affected by gain-sharing as these costs are borne by the Employers.

Laws of 2002

- Contribution rates were adopted in 2002 based on the 2000 actuarial valuations, but using new demographic assumptions (based on the 1995-2000 experience study).

Appendix A

GASB Funding Ratio

Appendix B

CAFR Footnote

Appendix C

DRS Annual Report Footnote

Appendix D

BARS Manual Footnote

Appendix E

Substitute Teachers